



Town of Erwin
Zoning Application & Permit
 Planning & Inspections Department

Permit #
75-0031

Rev Sep2014

Each application should be submitted with an attached plot/site plan with the proposed use/structure showing lot shape, existing and proposed buildings, parking and loading areas, access drives and front, rear, and side yard dimensions.

Name of Applicant	Shahzaib Khan	Property Owner	LifeLink Medical Group
Home Address	901 Denim Dr.	Home Address	901 Denim Dr.
City, State, Zip	Erwin, NC 28339	City, State, Zip	Erwin, NC 28339
Telephone	(919) 948-6475	Telephone	602-738-1834
Email	s.khan@8msolar.com	Email	doctorvisit@gmail.com

Address of Proposed Property	901 Denim Dr. Erwin, NC 28339		
Parcel Identification Number(s) (PIN)		Estimated Project Cost	\$79,950.00
What is the applicant requesting to build / what is the proposed use of the subject property? Be specific.	Roof mounted 36.480 kW solar system installation at 901 Denim Dr. Erwin, NC 28339		
Description of any proposed improvements to the building or property			
What was the Previous Use of the subject property?	Primary Care clinic specialized in internal and family medicine		
Does the Property Access DOT road?			
Number of dwelling/structures on the property already		Property/Parcel size	
Floodplain SFHA <u>Yes</u> <input checked="" type="checkbox"/> <u>No <input checked="" type="checkbox"/></u>	Watershed <u>Yes</u> <input type="checkbox"/> <u>No <input type="checkbox"/></u>	Wetlands <u>Yes</u> <input type="checkbox"/> <u>No <input checked="" type="checkbox"/></u>	
MUST circle one that applies to property	<input checked="" type="checkbox"/> Existing/Proposed Septic System <input type="checkbox"/> Or <input type="checkbox"/> Existing/Proposed County/City Sewer		

Owner/Applicant Must Read and Sign

The undersigned property owner, or duly authorized agent/representative thereof certifies that this application and the forgoing answers, statements, and other information herewith submitted are in all respects true and correct to the best of their knowledge and belief. The undersigning party understands that any incorrect information submitted may result in the revocation of this application. Upon issuance of this permit, the undersigning party agrees to conform to all applicable town ordinances, zoning regulations, and the laws of the State of North Carolina regulating such work and to the specifications of plans herein submitted. The undersigning party authorizes the Town of Erwin to review this request and conduct a site inspection to ensure compliance to this application as approved.

Md Abu Zahed Karim		09 / 13 / 2024
Print Name	Signature of Owner or Representative	Date

For Office Use

Zoning District	B1	Existing Nonconforming Uses or Features	
Front Yard Setback		Other Permits Required	<input type="checkbox"/> Conditional Use <input checked="" type="checkbox"/> Building <input checked="" type="checkbox"/> Fire Marshal <input type="checkbox"/> Other
Side Yard Setback	20	Requires Town Zoning Inspection(s)	<input type="checkbox"/> Foundation <input type="checkbox"/> Prior to C. of O.
Rear Yard Setback	12 30	Zoning Permit Status	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied
		Fee Paid: \$75	Date Paid: Staff Initials:

Comments: **Building permits from Harnett county**

Signature of Town Representative:	Date Approved/Denied: <input checked="" type="checkbox"/>
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1

Drill pilot hole in the center of the rafter.


2

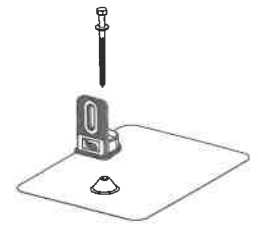
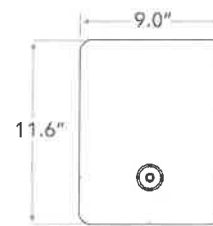
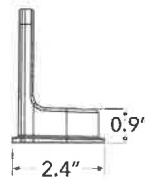
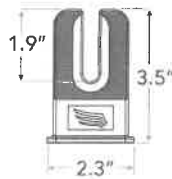
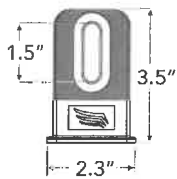
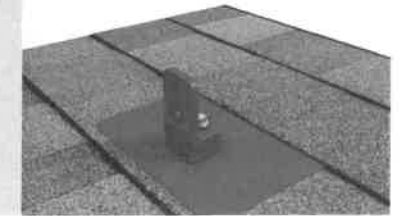
Optional: Apply a "u-shape" of sealant to the underside of the flashing and position under 2nd shingle course, cone over pilot hole.


3

Place L-Foot over cone and install lag with washer through L-Foot.


4

Drive lag to required depth. Attach rail per rail manufacturer's instructions.



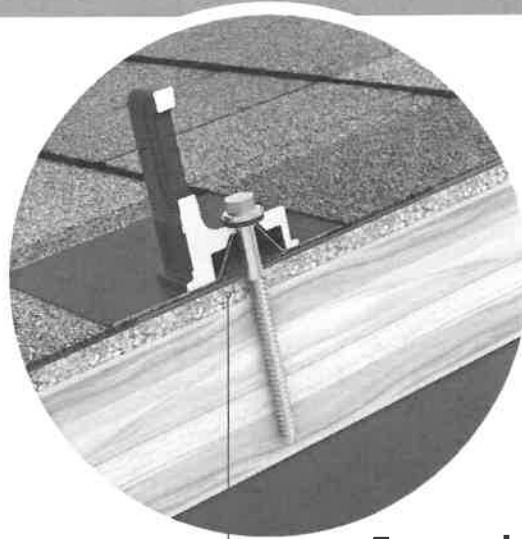
SPECIFICATIONS	COMP MOUNT INSTALL KITS				
SKU	PSCR-CBB0	PSCR-UBB0	SPCR-CBBH	PSCR-CMM0	PSCR-UMM0
Finish	Black L-Foot And Black Flashing			Mill	
L-Foot Type	Closed Slot	Open Slot	Closed Slot	Closed Slot	Open Slot
Kit Contents	L-Foot, Flashing, 5/16" x 4 1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16" x 4 1/2" SS Lag with metalized EPDM washer and M10 Hex Bolt	L-Foot, Flashing, 5/16" x 4 1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16" x 4 1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16" x 4 1/2" SS Lag with metalized EPDM washer
Roof Type	Composition Shingle				
Certifications	IBC, ASCE/SEI 7-16, AC286				
Install Application	Railed Systems				
Compatible Rail	Most				
Kit Quantity	24				
Boxes per Pallet	72				

Protected under US Patent: 10,998,847. Additional patents pending. All rights reserved. ©2021 Pegasus

COMP MOUNT

One-Piece Flashing with Elevated Cone

No press-fits or deck-level EPDM washers to fail



Encapsulating Design

Raises the water seal 0.9" Above roof deck



Simple 3-Piece Design Watertight For Life

Pegasus solar's comp mounts are a cost effective, high-quality option for rail installations on composition shingle roofs. Designed to last decades, the one-piece flashing with elevated cone means there is simply nothing to fail.



25-Year Warranty

Manufactured with advanced materials and coatings to outlast the roof itself



Code Compliant

Fully IBC/CBC Code Compliant
Exceeds ASCE 7-16 Standards



Superior Waterproofing

Tested to AC286 without sealant
Water seal elevated 0.9" above



All-In-One Kit Packaging

Flashings, L-Feet and SS lags with bonded EPDM washers are included in each 24-pack



Pegasus Rail

Available in 14' and 7' lengths for easy layout and shipping.

Open-channel design holds MC4 connectors, PV wire and trunk cables.
Black and Mill finish

Pegasus Max Rail

Maximum-strength design.
Meets specifications for high snow-load and hurricane zones.
Black and Mill finish

Splice and Max Splice

Installs by hand.
Works over mounts.
Structurally connects and bonds rails automatically; UL2703 listed as reusable.

Dovetail T-bolt

Dovetail shape for extra strength.
Uses 1/2" socket.



Multi-Clamp

Fits 30-40mm PV frames, as mid- or end-clamp.
Twist-locks into position; doesn't pinch wires in rail.
Bonds modules to rail; UL2703 listed as reusable



Hidden End Clamp

Offers premium edge appearance.
Preinstalled pull-tab grips rail edge, allowing easy, one-hand installation.
Tucks away for reuse.



Ground Lug

Holds 6 or 8 AWG wire.
Mounts on top or side of rail.
Assembled on MLPE Mount.
UL2703 listed as reusable.



N-S Bonding Jumper

Installs by hand, eliminates row-to-row copper wire.
UL2703 listed as reusable only with Pegasus Rail.



MLPE Mount

Secures and bonds most micro-inverters and optimizers to rail.
Connectors and wires easily route underneath after installation.
UL2703 listed as reusable.



Cable Grip

Secures four PV wires or two trunk cables.
Stainless-steel backing provides durable grip.
Eliminates sagging wires.



Wire Clip

Hand operable.
Holds wires in channel.
Won't slip.



End Cap and Max End Cap

Fits flush to PV module and hides raw or angled cuts.
Hidden drain quickly clears water from rail.

Certifications:

- UL 2703, Edition 1
- LTR-AE-001-2012
- ASCE 7-16 PE certified
- Class A fire rating for any slope roof



FREE PEGASUS SOLAR Design Tool

Quickly calculate the most efficient layout, spans and materials needed to suit your job. Visit the Pegasus Customer Portal. pegassussolar.com/portal

LOAD		SPAN			
SNOW (PSF)	WIND (MPH)	32"	4'	6'	8'
0	120				
	160				
	190				
15	140				
	160				
30	160				
	190				
45	190				
70	190				
110	190				

Legend: PEGASUS RAIL (Dark Grey), PEGASUS MAX RAIL (Light Grey)

For reference only. Spans above are calculated using ASCE 7-16 for a Gable Roof, Exposure Category B, 7-20deg roof angle, 30ft mean roof height with non-exposed modules. For PE certified span tables, visit www.pegassussolar.com/spans.

Patents pending. All rights reserved. ©2021 Pegasus Solar Inc.

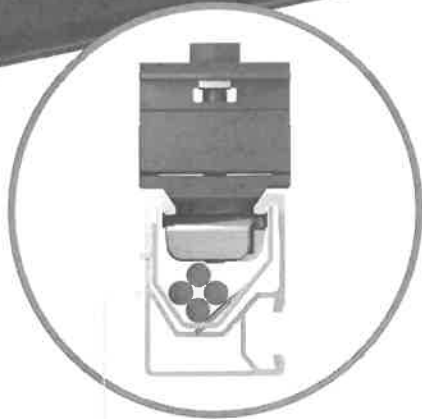
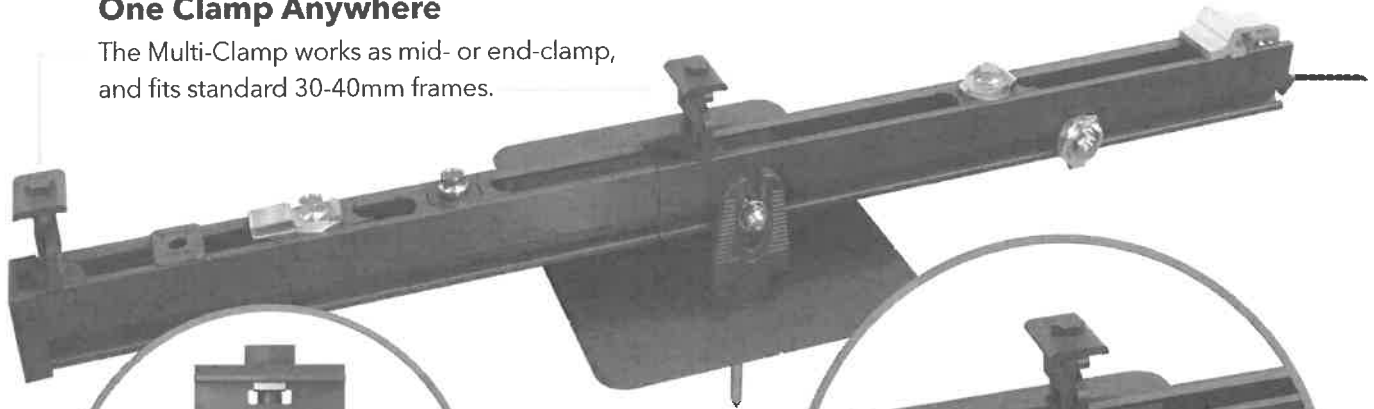
RAIL SYSTEM

One Clamp Anywhere

The Multi-Clamp works as mid- or end-clamp, and fits standard 30-40mm frames.

Instant Bonding

The N-S Bonding Jumper bonds row to row with no tools.



Lifetime Wire Management

Open rail channel holds and protects wires. Clamps won't pinch wires after tightening.



Bonding Structural Splice

Connect rails instantly, without tools, interference or limitations.

Next-Level Solar Mounting

A complete system for hassle-free rooftop installation, from watertight mounts to lifetime wire management.



Simplicity

1/2" socket for everything.
One clamp for mid or end.
No tool splicing and bonding.
Easy wire management.



Code Compliant

UL 2703 listed
LTR-AE-001-2012 listed
Class A fire rating for any slope
ASCE 7-16 PE Certified



Premium Aesthetics

The narrowest panel gap available. Optional Hidden End Clamps and End Caps provide a flush look on the edge of the array.



Watertight for Life

Secured on industry-leading Pegasus Mounts, for composite shingle and tile roofs. Backed by a 25-year warranty.

/ Three Phase Inverters for the 120/208V Grid⁽¹⁾

For North America

SE10KUS / SE17.3KUS

Model Number	SE10KUS	SE17.3KUS	
Applicable to inverters with part number	SEXKX-USX2IXXXX		
OUTPUT			
Rated AC Power Output	10000	17300	W
Maximum Apparent AC Output Power	10000	17300	VA
AC Output Line Connections	3W + PE, 4W + PE		
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-N)	105 – 120 – 132.5		
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-L)	183 – 208 – 229		
AC Frequency Minimum-Nominal-Maximum ⁽²⁾	59.3 – 60 – 60.5		
Continuous Output Current (per Phase)	27.8	48.25	Aac
GFDI Threshold	1		
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes		
THD	≤ 3		
Power Factor Range	+/- 0.85 to 1		
INPUT			
Maximum DC Power (Module STC)	17500	30275	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC+ to DC-	600		
Operating Voltage Range	370 – 600		
Maximum Input Current	27.8	48.25	Adc
Maximum Input Short Circuit Current	55		
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	167kΩ Sensitivity ⁽³⁾		
CEC Weighted Efficiency	97	97.5	%
Night-time Power Consumption	< 4		
ADDITIONAL FEATURES			
Supported Communication Interfaces	2 x RS485, Ethernet, Cellular (optional)		
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection		
Rapid Shutdown	NEC2014, NEC2017 and NEC2020 compliant/certified		
RS485 Surge Protection Plug-in	Supplied with the inverter, Built-in		
AC, DC Surge Protection	Type II, field replaceable, Built-in		
DC Fuses (Single Pole)	25A, Built-in		
Smart Energy Management	Export Limitation		
DC SAFETY SWITCH			
DC Disconnect	Integrated		
STANDARD COMPLIANCE			
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07		
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 14 (HI)		
Emissions	FCC part15 class A		
INSTALLATION SPECIFICATIONS			
AC Output Conduit size /AWG range	¾" or 1" / 6 - 10 AWG		
DC Input Conduit size / AWG range	¾" or 1" / 6 - 12 AWG		
Number of DC inputs pairs	4		
Dimensions with Safety Switch (H x W x D)	31.8 x 12.5 x 11.8 / 808 x 317 x 300		
Weight with Safety Switch	78.2 / 35.5		
Cooling	Fans (user replaceable)		
Noise	< 62		
Operating Temperature Range	-40 to +140 / -40 to +60(4)		
Protection Rating	NEMA 3R		
Mounting	Bracket provided		

(1) For 277/480V inverters refer to the [Three Phase Inverters for the 277/480V Grid for North America datasheet](#).

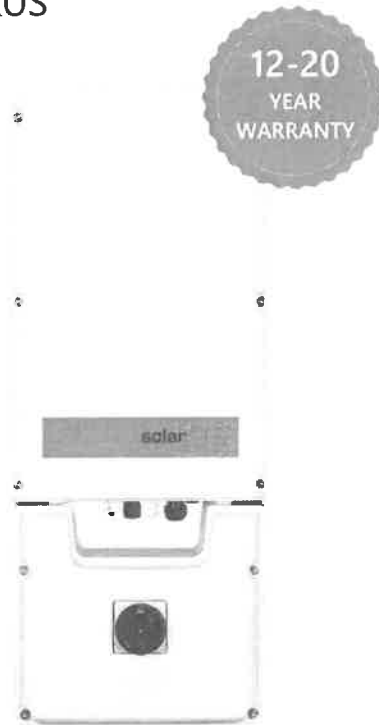
(2) For other regional settings please contact SolarEdge support.

(3) Where permitted by local regulations.

(4) For power de-rating information refer to the [Temperature De-rating - Technical Note \(North America\)](#).

Three Phase Inverters for the 120/208V Grid For North America

SE10KUS / SE17.3KUS

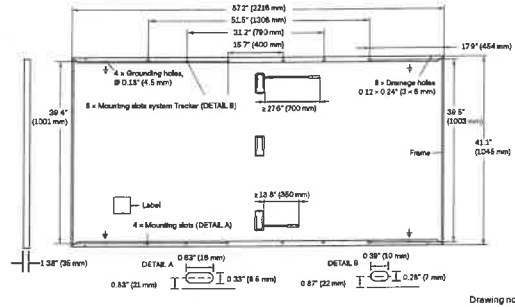


The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- Fixed voltage inverter for superior efficiency and longer strings
- Built-in type 2 DC and AC Surge Protection, to better withstand lightning events
- Small, lightest in its class, and easy to install outdoors or indoors on provided bracket
- Integrated arc fault protection and rapid shutdown for NEC 2014, 2017, and 2020, per article 690.11 and 690.12
- Built-in module-level monitoring with Ethernet, wireless or cellular communication for full system visibility
- Integrated Safety Switch
- UL1741 SA and SB certified, for CPUC Rule 21 grid compliance

MECHANICAL SPECIFICATION

Format	87.2in × 41.1in × 1.38in (including frame) (2216mm × 1045mm × 35mm)
Weight	64.2lbs (29.1kg)
Front Cover	0.08in (2.0mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	0.08in (2.0mm) semi-tempered glass
Frame	Anodized aluminum
Cell	6 × 26 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98in × 1.26-2.36in × 0.59-0.71in (53-101mm × 32-60mm × 15-18mm), IP67, with bypass diodes
Cable	4mm ² Solar cable; (+) ≥27.6in (700mm), (-) ≥13.8in (350mm)
Connector	Stäubli MC4, Stäubli MC4-Evo2, Hanwha Q CELLS HQC4, IP68



ELECTRICAL CHARACTERISTICS

POWER CLASS		475		480		485		490			
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ² AND BSTC ¹ (POWER TOLERANCE +5 W / -0 W)											
				BSTC ¹		BSTC ¹		BSTC ¹			
Minimum	Power at MPP ²	P _{MPP}	[W]	475	519.6	480	525.0	485	530.5	490	536.0
	Short Circuit Current ²	I _{SC}	[A]	11.08	12.12	11.12	12.17	11.16	12.21	11.20	12.26
	Open Circuit Voltage ¹	V _{OC}	[V]	53.15	53.34	53.39	53.58	53.63	53.82	53.86	54.06
	Current at MPP	I _{MPP}	[A]	10.55	11.54	10.59	11.58	10.63	11.63	10.67	11.67
	Voltage at MPP	V _{MPP}	[V]	45.03	45.02	45.33	45.32	45.63	45.62	45.93	45.92
	Efficiency ¹	η	[%]	≥20.5	≥22.4	≥20.7	≥22.7	≥20.9	≥22.9	≥21.2	≥23.1

Bifaciality of P_{MPP} and I_{SC} 70% ±5% • Bifaciality given for rear side irradiation on top of STC (front side) • According to IEC 60904-1-2

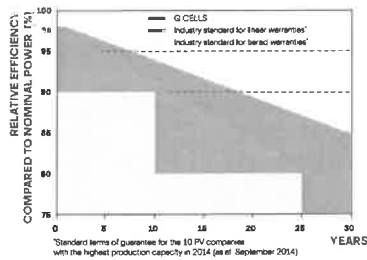
¹Measurement tolerances P_{MPP} ±3%; I_{SC}, V_{OC} ±5% at STC: 1000 W/m²; *at BSTC: 1000 W/m² + φ × 135 W/m², φ = 70% ±5%, 25 ±2°C, AM 1.5 according to IEC 60904-3

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT²

Minimum	Power at MPP	P _{MPP}	[W]	357.6	361.4	365.1	368.9
	Short Circuit Current	I _{SC}	[A]	8.92	8.96	8.99	9.02
	Open Circuit Voltage	V _{OC}	[V]	50.27	50.49	50.72	50.95
	Current at MPP	I _{MPP}	[A]	8.30	8.34	8.37	8.40
	Voltage at MPP	V _{MPP}	[V]	43.06	43.35	43.63	43.92

²800 W/m², NMOT, spectrum AM 1.5

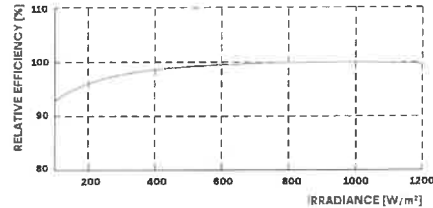
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.45% degradation per year. At least 93.95% of nominal power up to 10 years. At least 84.95% of nominal power up to 30 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{SC}	α	[%/K]	+0.04	Temperature Coefficient of V _{OC}	β	[%/K]	-0.27
Temperature Coefficient of P _{MPP}	γ	[%/K]	-0.34	Nominal Module Operating Temperature	NMOT	[°F]	108 ± 5.4 (42 ± 3°C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{sys}	[V]	1500	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 29 ⁴
Max. Design Load, Push / Pull ³	[lbs/ft ²]	75 (3600 Pa) / 33 (1600 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push / Pull ³	[lbs/ft ²]	113 (5400 Pa) / 50 (2400 Pa)		

³See Installation Manual

⁴New Type is similar to Type 3 but with metallic frame

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland; UL 61730, CE-compliant, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells)



PACKAGING INFORMATION

	89.4in 2270mm	43.1in 1095mm	47.6in 1210mm	1975lbs 896kg	20 pallets	20 pallets	29 modules
Horizontal packaging							
Vertical packaging	90.8in 2306mm	45.3in 1150mm	47.4in 1205mm	2013lbs 913kg	20 pallets	20 pallets	30 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.

400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

powered by

Q.ANTUM DUO Z

Q.PEAK DUO XL-G10.3 / BFG 475-490

BIFACIAL DOUBLE GLASS MODULE
WITH EXCELLENT RELIABILITY
AND ADDITIONAL YIELD



Quality
Controlled PV

www.tuv.com
ID 1111232615



BIFACIAL ENERGY YIELD GAIN OF UP TO 20 %

Bifacial Q.ANTUM solar cells with zero gap cell layout make efficient use of light shining on the module rear-side for radically improved LCOE.



LOW ELECTRICITY GENERATION COSTS

Q.ANTUM DUO Z combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology for higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 21.4 %.



INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behavior.



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID and Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.



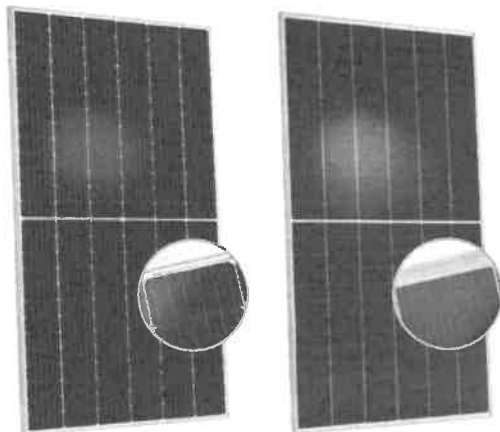
FRAME FOR VERSATILE MOUNTING OPTIONS

High-tech aluminum alloy frame protects from damage, enables use of a wide range of mounting structures and is certified regarding IEC for high snow (5400 Pa) and wind loads (2400 Pa).



A RELIABLE INVESTMENT

Double glass module design enables extended lifetime with 12-year product warranty and improved 30-year performance warranty².



6 BUSBAR
CELL TECHNOLOGY

12 BUSBAR
CELL TECHNOLOGY

THE IDEAL SOLUTION FOR:



Ground-mounted
solar power plants

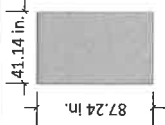
¹ APT test conditions according to IEC/TS 62804-1:2015 method B (-1500 V, 168 h) including post treatment according to IEC 61215-1-1 Ed. 2.0 (CD)

² See data sheet on rear for further information.

SYSTEM DETAILS
 Number of Panels: 76
 Panels Module: Q-PEAK DUO XL-G50.3 / BFG-480W
 DC Size: 36.480 kW
 AC Size: 34.6 kVA

RACKING DETAILS
 Pegasus Rails
 Pegasus Comp. Mounts

MODULE DIMENSIONS



UTILITY METER



1600 Heritage Commerce Ct. Ste 104,
 Wake Forest NC 27587
 O: 919.948.6474
 E: info@8msolar.com

Customer Information:

LifeLink Medical Group
 901 Denim Dr.
 Erwin, NC 28339

Customer Signature:

Sheet Name:

Racking Details

JOB NUMBER:

23-439-LLM

Date:

11/21/2023

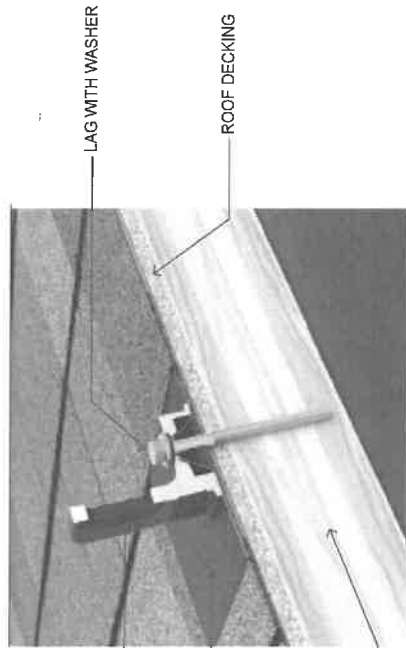
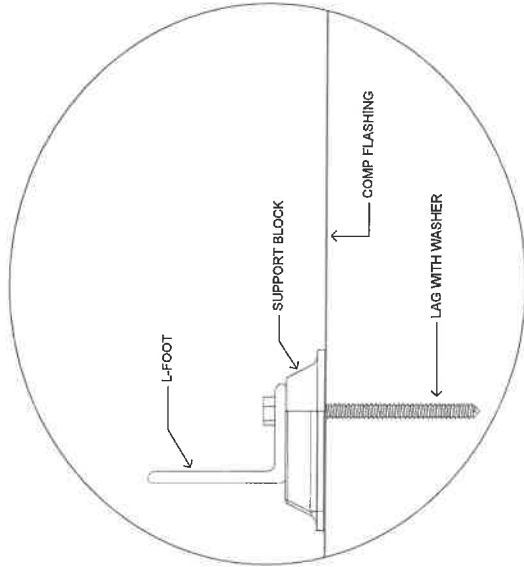
Revision A:

Sheet Size:

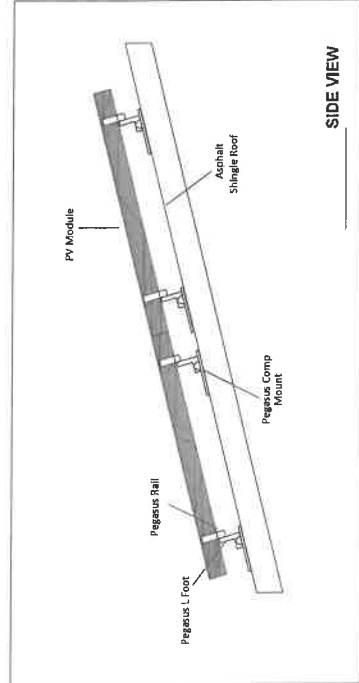
22" X 28.7"

Sheet Number:

PV8

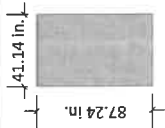


L-FOOT
 FLASHING
 LAG WITH WASHER
 ROOF DECKING
 (2" x 4")
 Truss Spanner



	Multi-Clamp	Torque Value 100 in-lbs.
	Hidden End Clamp	Torque Value 135 in-lbs.
	MLPE Mount	Torque Value 135 in-lbs.
	Dovetail T-Bolt	Torque Value 300 in-lbs.
	Ground Lug	Torque Value 135 in-lbs.
	Cable Grip	Torque Value 135 in-lbs.

MODULE DIMENSIONS



SYSTEM DETAILS

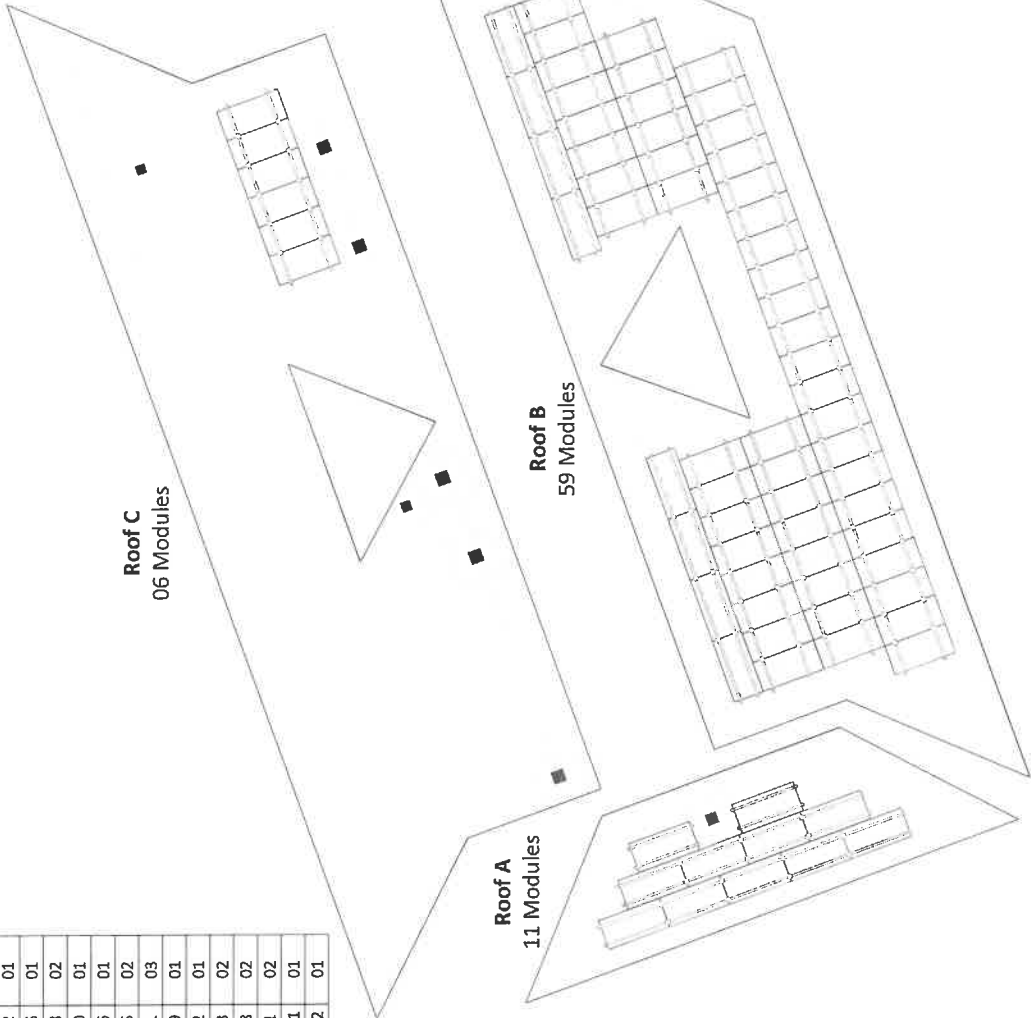
Modules: 76 x Q-PEAK DUO XL-G10.3 / BFG 480W
 Optimizer: 40 x SOLAREEDGE P1101 OPTIMIZER
 RAPID SHUTDOWN EQUIPPED



UTILITY METER

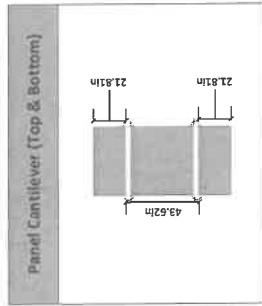
PV LABELS

Sr No	Code	Qty
01	02-314	11
02	03-301	02
03	03-302	01
04	02-316	01
05	03-308	02
06	03-390	01
07	03-306	01
08	05-215	02
09	05-211	03
10	07-359	01
11	05-372	01
12	05-103	02
13	05-108	02
14	07-111	02
15	8M-001	01
16	8M-002	01



- RAILS AND MOUNTING SYSTEM
- 108 x PSR-884: Pegasus Rail, Black, 84" (7 Feet)
- 84 x PSR-SPL: Pegasus - Bonded, Structural Splice
- 128 x PSR-MCB: Pegasus - Multiclamp, Mid/End, 30 to 40 mm, Black
- 48 x PSR-HEC: Pegasus - Hidden End Clamp
- 40 x PSR-MLP: Pegasus - MLPE Mount
- 15 x PSR-LUG: Pegasus - Grounding Lug
- 115 x PSR-WMC: Pegasus - Wire Management Clip
- 13 x PSR-CBG: Pegasus - Cable Grip
- 48 x PSR-CAP: Pegasus - End Cap
- 180 x PSR-UBBDT: Pegasus Comp Mount - Open Slot, Black L Foot, Black Flashing, Dovetail 3/8" T-Bolt
- 228 x Heyco Wire Clips
- 228 x Zip Ties
- 25 x SNRAC 232-01259: SNAPRACK, ARRAY SKIRT, 162" (13.5 Feet) BLK
- 90 x SNRAC 242-92211: SNAPRACK, SKIRT FRAME MOUNT.
- 11 x SNRAC 232-01251: SNAPRACK, SKIRT SPLICE PAIR.
- 27 x SNRAC 232-01250: SANPNRACK, SKIRT END CAP PAIR.

- SOLAR MODULES
- 76 x Q-PEAK DUO XL-G10.3 / BFG 480W
- INVERTER & SUPPORTING ITEMS
- 02 x SolarEdge SE17.3kUS
- 40 x SolarEdge Power Optimizer P1101
- 04 x IPCS 2540: Line/Load Side Hot Taps (#250-#1 main - #4/0-#4 tap) Large types
- WIRE & DISCONNECTS
- 500 ft x #10 PV WIRE BLK (Cu)



4ft setback from sides of the roof



1600 Heritage Commerce Ct Ste 104,
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Customer Information:

Lifelink Medical Group
 901 Denim Dr.
 Erwin, NC 28839

Customer Signature:

Sheet Name:

BILL OF MATERIAL

JOB NUMBER:

23-439-LLIM

Date:

11/21/2023

Revision A:

Sheet Size:

22" X 28.7"

Sheet Number:

PV7





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Customer Information:	LifeLink Medical Group 901 Denim Dr. Erwin, NC 28339
Customer Signature:	
Sheet Name:	PV Labels
JOB NUMBER:	23-439-LLM
Date:	11/21/2023
Revision A:	
Sheet Size:	22" X 28.7"
Sheet Number:	PV6



Main Service Panel
Outside Labels
#8
#9
#15
Inside Labels
#6
#13
#11
#14
NEC 2017
NEC 690.13 (B)
NEC 690.56 (B)
NEC 705.10
NEC 705.12 (D)(2)(3)(b)
NEC 705.12 (D)(2)(3)(c)

WARNING

THIS EQUIPMENT FED BY MULTIPLE SOURCES, TOTAL RATING OF ALL OVERCURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE OFF POSITION TO DEENERGIZE PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY

SOLAR AC DISCONNECT LOCATED AT SOUTH-EAST SIDE WALL OF THE HOUSE BESIDE THE UTILITY METER

SERVICE DISCONNECT LOCATED IN MAIN LOAD PANEL INSIDE THE HOUSE

Meter
#10
NEC 2017
NEC 690.13 (B)
NEC 690.54

WARNING

ELECTRIC SHOCK HAZARD TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

WARNING

DUAL POWER SUPPLY SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

WARNING

THIS SERVICE METER IS ALSO SERVED BY A PHOTOVOLTAIC SYSTEM

WARNING

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

WARNING

BIPOLAR PHOTOVOLTAIC ARRAY DISCONNECTION OF NEUTRAL GROUND CONDUCTORS MAY RESULT IN OVERVOLTAGE ON ARRAY OR INVERTER

AC Disconnect
#3
#4
#7
#16
NEC 2017
NEC 690.13 (B)
NEC 690.4
NEC 690.54

WARNING: PHOTOVOLTAIC POWER SOURCE

PHOTOVOLTAIC
DC DISCONNECT

PHOTOVOLTAIC
AC DISCONNECT

MAXIMUM VOLTAGE
MAXIMUM OUTPUT CURRENT
MAX. RATED OUTPUT CURRENT
OFF THE CHARGE CONTROLLER OR DC TO DC CONVERTER (IF INSTALLED)

PHOTOVOLTAIC POWER SOURCE
OPERATING AC VOLTAGE
MAXIMUM OPERATING AC OUTPUT CURRENT

AC DISCONNECT
PHOTOVOLTAIC SYSTEM
RATED AC POWER SOURCE
OUTPUT CURRENT
NOMINAL OPERATING AC VOLTAGE

Load Center
#1
#8
#14
NEC 2017
NEC 690.15 (C)
NEC 690.31 (B)
NEC 690.13 (B)

Inverter
#2
#5
#9
#12
NEC 2017
690.4 (B)
690.15 (C)
690.53
690.12 (B)
690.13 (B)
690.56 (C)

DC Junction Box
#1
NEC 2017
NEC 690.15 (C)
NEC 690.31 (B)

LABELING AND WARNING SIGNS

A. PURPOSE
PROVIDE EMERGENCY RESPONDERS WITH APPROPRIATE WARNING AND GUIDANCE WITH RESPECT TO ISOLATING THE SOLAR ELECTRIC SYSTEM. THIS CAN FACILITATE IDENTIFYING ENERGIZED ELECTRICAL LINES THAT CONNECT THE SOLAR PANELS TO THE INVERTER, AS SHOULD NOT BE CUT WHEN VENTING FOR SMOKE REMOVAL.

B. MAIN SERVICE DISCONNECT:
1. RESIDENTIAL BUILDINGS- THE MARKING MAY BE PLACED WITHIN THE MAIN SERVICE DISCONNECT. THE MARKING SHALL BE PLACED ON THE OUTSIDE COVER IF THE MAIN SERVICE DISCONNECT IS OPERABLE WITH THE SERVICE PANEL CLOSED.

2. COMMERCIAL BUILDINGS- THE MARKINGS SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT CLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED

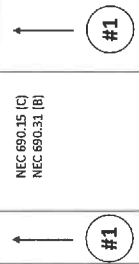
3. MARKINGS, VERBIAGE, FORMAT AND TYPE OF MATERIAL
a. VERBIAGE: CAUTION; SOLAR ELECTRIC SYSTEM CONNECTED
b. FORMAT:
(1) WHITE LETTERING ON A RED BACKGROUND
(2) MINIMUM 3/8" INCH LETTER HEIGHT
(3) ALL LETTERS SHALL BE CAPITALIZED
(4) ARIAL OR SIMILAR FONT, NON-BOLD

c. MATERIAL:
(1) REFLECTIVE, WEATHER RESISTANT MATERIAL FOR THE ENVIRONMENT (USE UL-969) AS STANDARD FOR WEATHER RATING; DURABLE ADHESIVE MATERIALS THIS REQUIREMENT.

C. MARKING REQUIREMENTS ON DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, DC COMBINERS AND JUNCTION BOXES:
1. MARKING: PLACEMENT, VERBIAGE, FORMAT AND TYPE OF MATERIAL
a. PLACEMENT: MARKINGS SHALL BE PLACED EVERY 10' (TEN) FEET ON ALL INTERIOR AND EXTERIOR DC CONDUITS, ENCLOSURES AND CABLE ASSEMBLIES, AT TURNS ABOVE AND/OR BELOW PENETRATIONS, ALL DC COMBINERS AND JUNCTION BOXES.
b. VERBIAGE: CAUTION SOLAR CIRCUIT
c. THE FORMAT AND TYPE OF MATERIAL SHALL ADHERE TO SECTION B-3.8 & C ABOVE

D. INVERTERS ARE NOT REQUIRED TO HAVE CAUTION MARKINGS

Solar PV Array(s)





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Customer Information:

Lifeline Medical Group
901 Denim Dr.
Erwin, NC 28339

Customer Signature:

Sheet Name:

Detailed Electrical Diagram

JOB NUMBER:

23-439-LLIM

Date:

11/21/2023

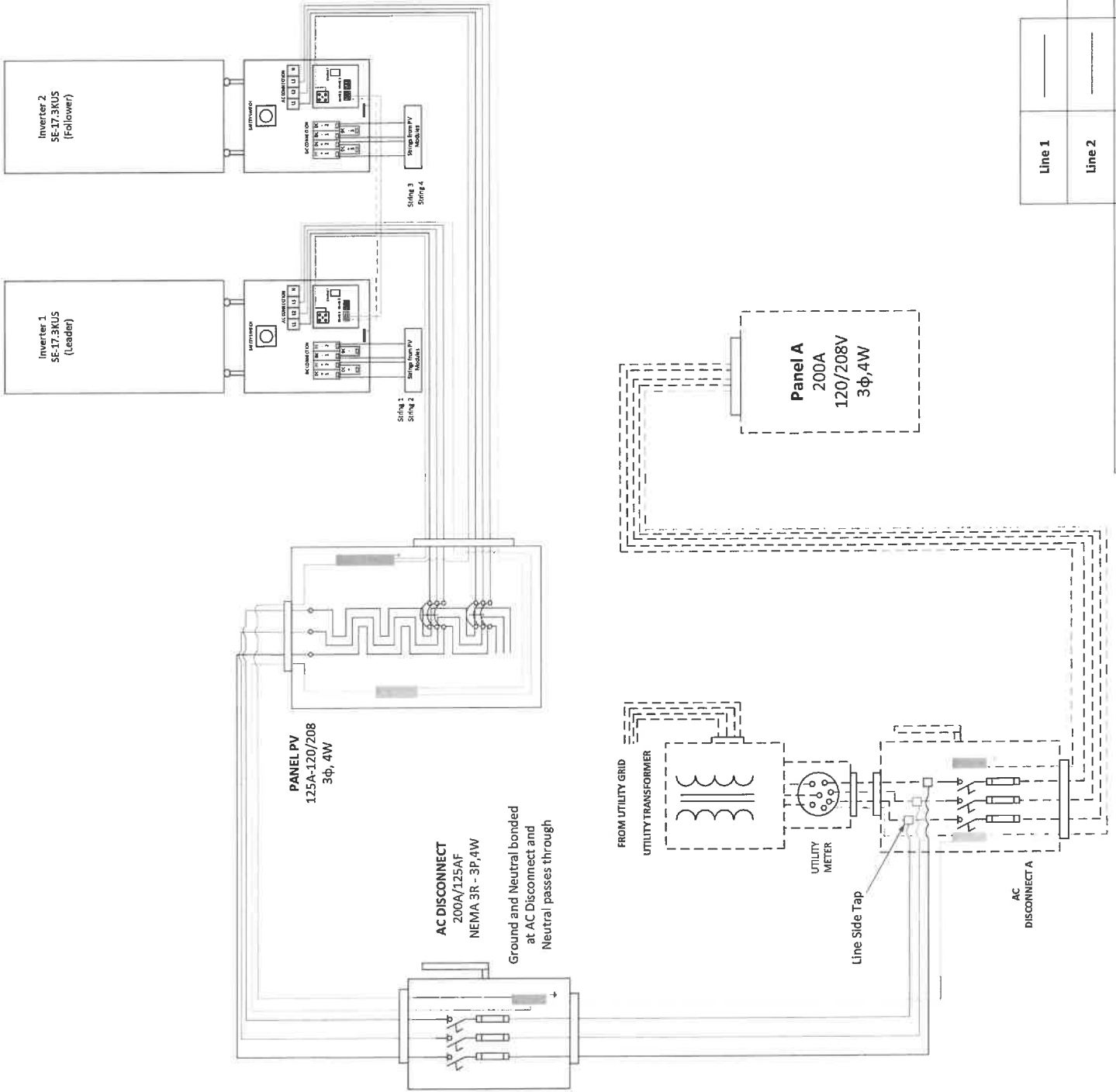
Revision A:

Sheet Number:

PV5

Sheet Size:

22" X 28.7"



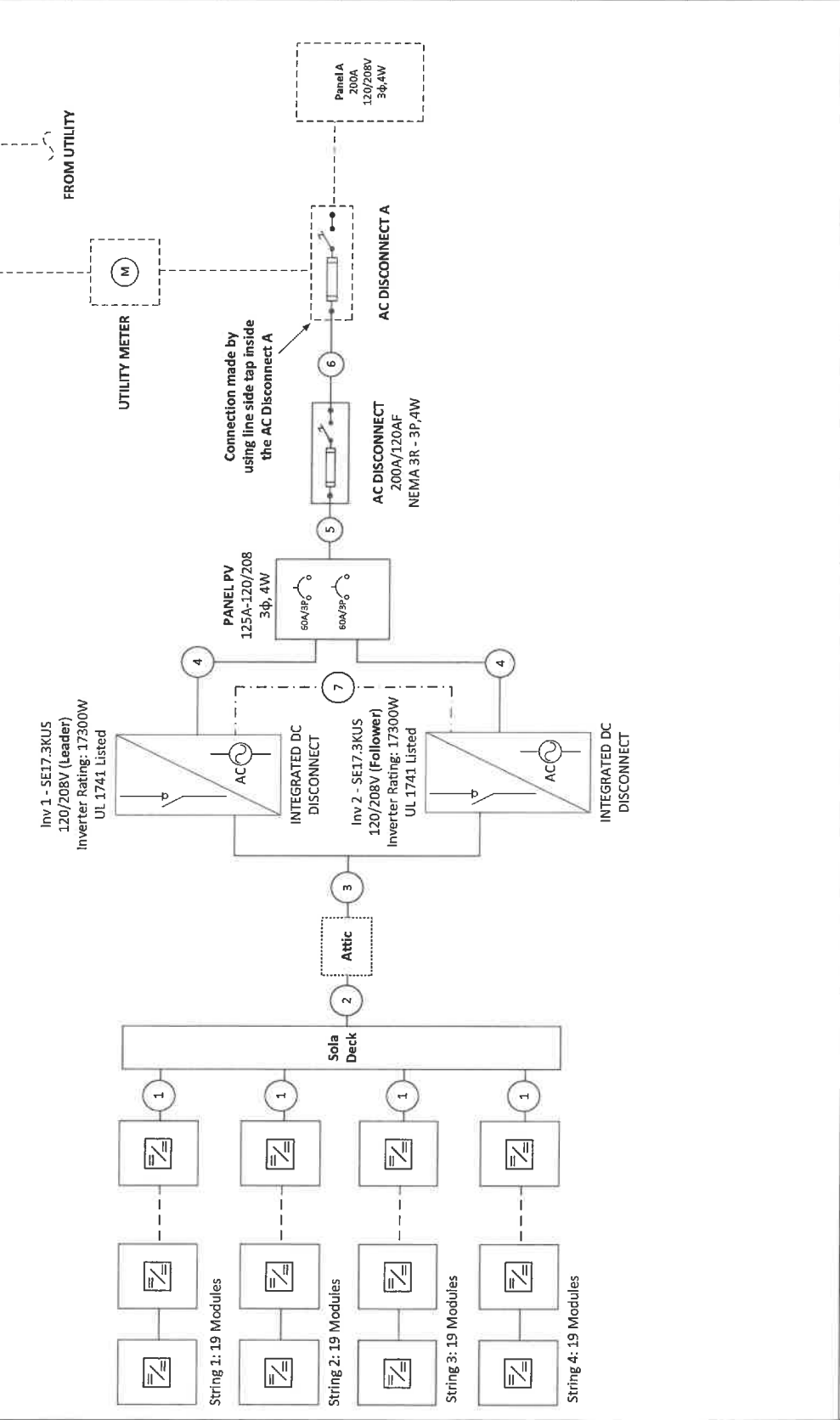
Line 1	_____	Neutral	_____
Line 2	_____	Ground	_____
Line 3	_____		_____

Note: Lifeline Medical Group will provide an ethernet port within the 10 feet of inverter for the communication.

STRING CALCULATION

String #	No of Modules	Estimated Power	Imp	Voc	Vmpp	Modules:
1	19	9,120W	15.2A	28.08A	600V DC	76 x Q, PEAK DUO XL-G10.3 / BFG 480W
2	19	9,120W	15.2A	28.08A	600V DC	Optimizer: 40 x SOLAREEDGE P1101
3	19	9,120W	15.2A	28.08A	600V DC	OPTIMIZER RAPID SHUTDOWN EQUIPPED
4	19	9,120W	15.2A	28.08A	600V DC	

Rapid Shut Down	NEC 690.12 (A-D), UL1741	Grounding	NEC Article 250.30(A)
Grid Connection Standards	IEEE 1547, Rule 21, 14(H)	Conduit Fill	NEC Table C.9, 310.15(B)(3)(a)
Feeder Sizing	NEC Table 310.15(B)(16), 17)	Interconnection	NEC 705.12
Over current Protection	NEC 690.9	Disconnecting Means	NEC 690.13



Sr.No	#Wire	Conduit Size	Ground Wire	Amperage
1	2 x #10 PV Wire		#10 Bare CU	
2	8 x #8 XHHW-2	1.25" LFMC	#10 Green	28.08
3	8 x #8 XHHW-2	1.25" EMT	#10 Green	
4	4 x #6 THHN	1" EMT	#8 Green	60A
5	4 x #1 THHN	1.5" EMT	#6 Green	120A
6	4 x #1 THHN	1.5" EMT	#6 Green	120A
7	CAT5e Shielded	1" EMT		

- Grounding will be done via grounding lugs and mid-clamps to ensure the rail and panels are continuously grounded.
- Rapid Shutdown is included in the Inverters, refer to Inverter & Optimizer attached datasheets.
- The load center / disconnect will be visible, lockable accessible to utility linemen and will be properly labelled as per NEC requirements. It will be located on the exterior wall of the building, next to the utility meter.

- System Size: 36,480W DC
- (76) Q, PEAK DUO XL-G10.3 / BFG 480W
- (40) SOLAREEDGE P1101 OPTIMIZERS
- (02) SOLAREEDGE SE17.3KUS Inverter
- SE17.3KUS Inverter Output: 48.25A max (per phase)
- Combined AC output max: 34.6 KVA

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Sheet Name:
Electrical One Line Diagram

JOB NUMBER:
23-439-LLM

Date:
11/21/2023

Revision A:

Sheet Number:
PV4

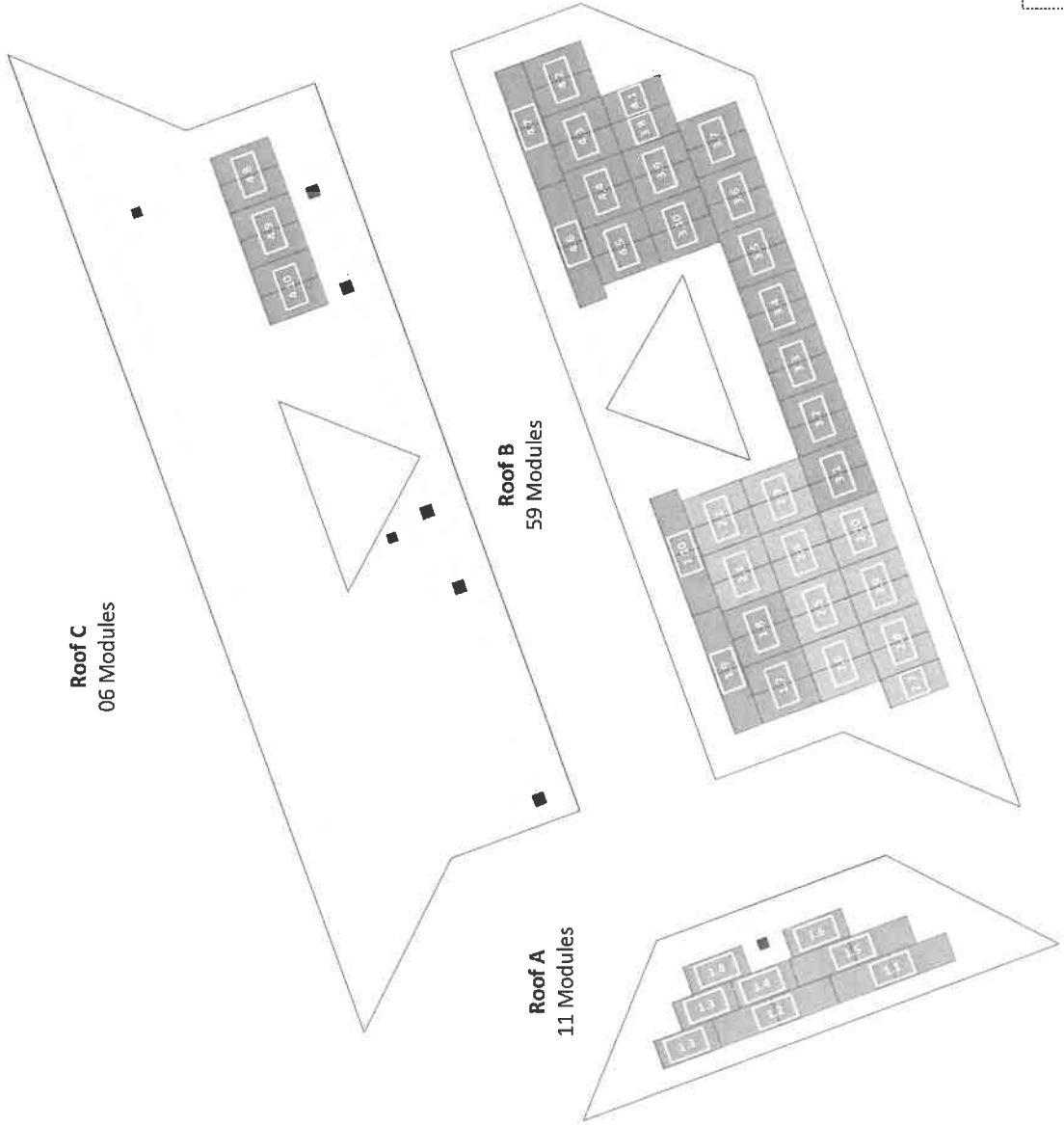
APR 10, 2023
PV Installation Professionals
PWP-ADD-1010-22

String Layout – Inverter: SE17.3KUS

Strings #	Inverter 1		Inverter 2		Color
	No. of Modules	No. of Optimizer	No. of Modules	No. of Optimizer	
String 1	19	10	String 3	19	10
String 2	19	10	String 4	19	10



UTILITY METER



2ft setback from each Vent on the roof

4ft setback from sides of the roof



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Sheet Name:

String Mapping

JOB NUMBER:

23-439-LLM

Date:

11/21/2023

Revision A:

Sheet Number:

PV3

Sheet Size:

22" X 28.7"





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Sheet Name:

Site Layout

JOB NUMBER:

23-439-LLM

Date:

11/21/2023

Revision A:

Sheet Size:

22" X 28.7"

Sheet Number:

PV2



UTILITY METER

SYSTEM DETAILS

Modules: 76 x Q.PEAK DUO XL-G10.3 / BFG 480W
Optimizer: 30 x SOLAREGE P1101 OPTIMIZER
RAPID SHUTDOWN EQUIPPED

LEGENDS

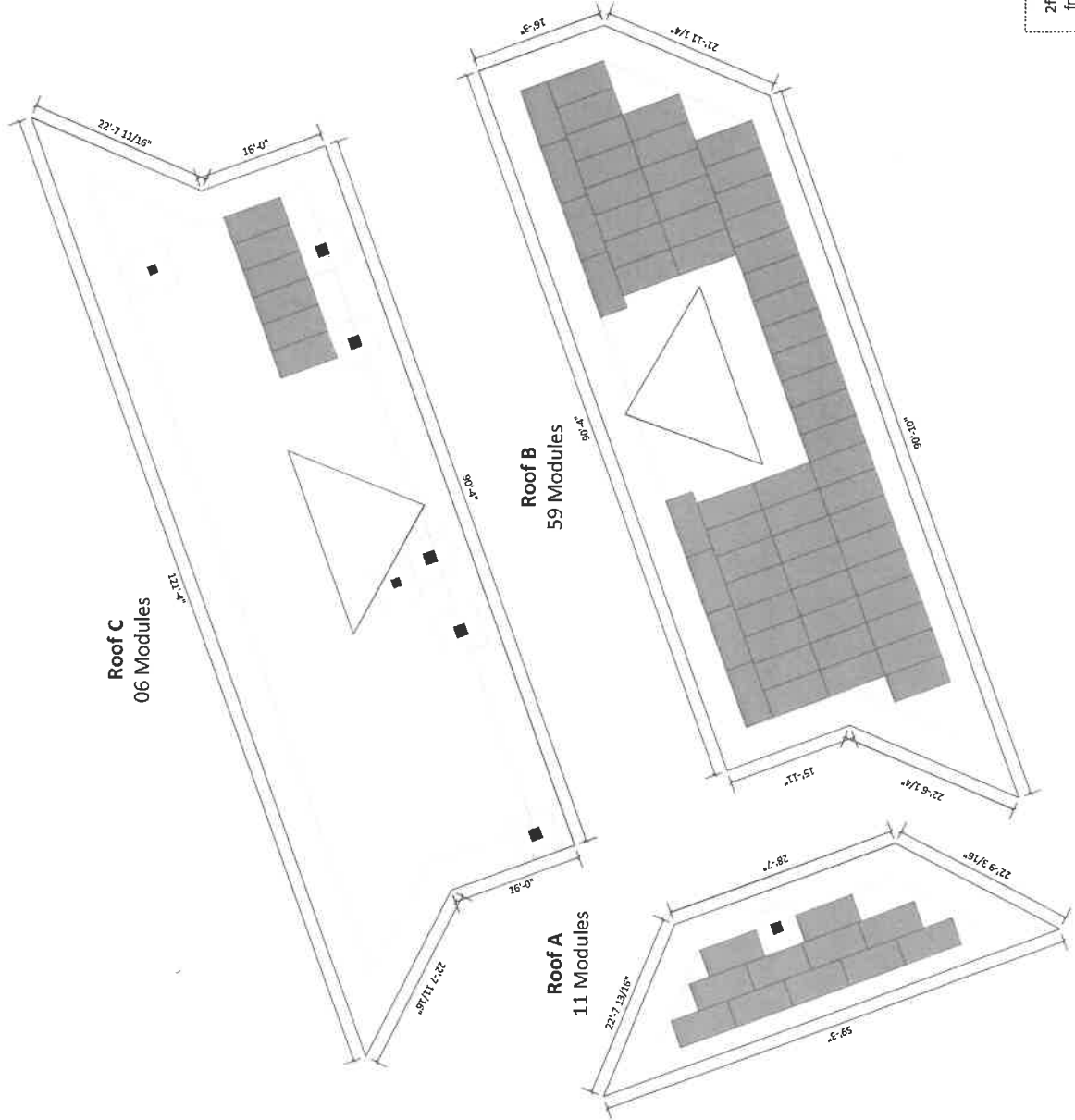
SYMBOLS	DESCRIPTION
■	Roof Vent

MODULE DIMENSIONS



ROOF DESCRIPTION

ROOF	PITCH	AZIMUTH	NO. OF MODULES
A	23°	250°	11
B	23°	160°	59
C	23°	340°	06



2ft setback from each Vent on the roof

4ft setback from sides of the roof



PHOTOVOLTAIC ROOF MOUNT SYSTEM

CODE AND STANDARDS

- THE INSTALLATION OF SOLAR ARRAYS AND PHOTOVOLTAIC POWER SYSTEMS SHALL COMPLY WITH THE FOLLOWING CODES:
- 2020 NATIONAL ELECTRICAL CODE
 - 2018 NORTH CAROLINA BUILDING CODE
 - ALL OTHER ORDINANCE ADOPTED BY THE LOCAL GOVERNING AGENCIES

SITE NOTES / OSHA REGULATION

1. A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
2. THE SOLAR PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
3. ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED AND IDENTIFIED BY RECOGNIZED ELECTRICAL TESTING LABORATORY.
4. MODULES AND SUPPORT STRUCTURES SHALL BE GROUNDED
5. SOLAR INVERTER SHALL BE LISTED TO UL1741
6. ALL CONDUCTORS SHALL BE COPPER AND SHOULD BE 75 AND 90 DEG RATED
7. REMOVAL OF AN INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR, THE PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT GROUNDED CONDUCTORS.
8. LIVE PARTS OF PV SOURCE CIRCUITS AND PV OUTPUT CIRCUITS OVER 150V TO GROUND SHALL NOT BE ACCESSIBLE TO OTHER THAN QUALIFIED PERSONS WHILE ENERGIZED.
9. ALL PV MODULES AND ASSOCIATED EQUIPMENT AND WIRING SHALL BE PROTECTED FROM PHYSICAL DAMAGE.

SOLAR CONTRACTOR

1. MODULE CERTIFICATIONS INCLUDE UL1703, IEC61646, IEC61370.
2. IF APPLICABLE, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE MARKED GROUNDING LUG HOLES PER THE MANUFACTURERS INSTALLATION REQUIREMENTS.
3. AS INDICATED BY DESIGN, OTHER NRTL LISTED MODULE GROUNDING DEVICES MAY BE USED IN PLACE OF STANDARD GROUNDING LUGS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ.
4. ALL MICROINVERTERS, PHOTOVOLTAIC MODULES, AC COMBINERS, DC-AC CONVERTERS AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER NEC690.4(B).
5. ALL SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH LOCAL BUILDING CODE.
6. TERMINALS AND LUGS WILL BE TIGHTENED TO MANUFACTURER TORQUE SPECIFICATIONS (WHEN PROVIDED) IN ACCORDANCE WITH NEC CODE 110.14(D) ON ALL ELECTRICAL CONNECTIONS.
7. MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC UNLESS NOT AVAILABLE.

DESIGN CRITERIA

WIND SPEED: 115 MPH
GROUND SNOW LOAD: 15 LB/FT²
WIND EXPOSURE FACTOR: B

UTILITY COMPANY:

DUKE ENERGY PROGRESS
PERMIT ISSUER (AHJ):
HARNETT COUNTY

SCOPE OF WORK

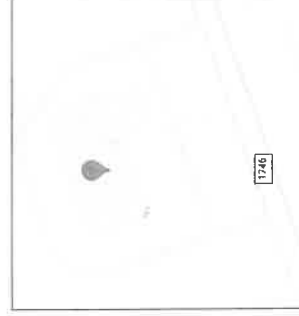
INSTALLATION OF UTILITY INTERACTIVE PHOTOVOLTAIC SOLAR SYSTEM.

PROJECT INFORMATION

SR.#	
1	PV MODULES 76 X Q PEAK DUO XL-G10.3 / BFG 480W
2	OPTIMIZER 40 X P1101
3	INVERTER 02 X SE17.3KUS
4	ROOF TYPE ASPHALT SHINGLES
5	RACKING PSR-884 RAILS (BLACK)
6	MOUNTING TYPE COMP MOUNT FLASHING (BLACK)
7	DC SIZE 36.480 KW
8	AC SIZE 34.6 KVA

PROJECT INFORMATION

SR.#	
1	PV1 DRAWING INDEX
2	PV2 SITE LAYOUT
3	PV3 STRING MAPPING
4	PV4 ELECTRICAL ONE LINE DIAGRAM
5	PV5 DETAILED ELECTRICAL WIRING SCHEMATIC
6	PV6 PV LABELS
7	PV7 BILL OF MATERIALS
8	PV8 RACKING DETAILS



VICINITY MAP

TOP VIEW OF THE BUILDING



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Drawing Index

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Revision A:

Sheet Size:

22" X 28.7"

Sheet Number:

PV1

